DATA SHEET

# SBG941 Series

## SURFboard® Wireless Cable Modem Gateway with Four-Port Switch

State-of-the-art wireless networking technology in a cost-effective, conveniently-sized package.

**Highlights[1]**

**Easy to set up and use**

**Expandable**
Features up to 16 Service Identifiers (SIDs) for future expansion of enhanced features

**Remote configuration and monitoring**
Help to reduce support costs and aid troubleshooting

**Interoperates with DOCSIS® 2.0/1.1**

Motorola's SBG941 Series SURFboard Wireless Cable Modem Gateway combines an industry-leading cable modem, an integrated four-port switch, an IEEE 802.11b/g wireless point, and an advanced firewall into one compact product. It's the perfect networking solution for the home, home office, or small business, allowing users to create a custom network to share a single broadband connection, files, networked printers, and peripherals without wires. Cost-effective and efficient, the SBG941 Series enables users to maximize the potential of their existing resources. The SBG941 Series also offers easily managed, enhanced network security for both wired and wireless users.

### Integrated DOCSIS 2.0 Cable Modem

The integrated Motorola SURFboard cable modem incorporates the newest DOCSIS 2.0 silicon for improved performance over legacy DOCSIS products, design enhancements for a more environmentally friendly product, and feature evolvement to meet the changing needs of MSO and end users. The Motorola SBG941 Series is the ideal device for expanding an operator's home network service offerings.

### Wireless LAN Mobility

The Motorola SBG941 Series merges the advantages of the SURFboard cable modem with the mobility of a wireless LAN (WLAN). It includes an integrated IEEE 802.11b/g Wi-Fi® access point that allows users (with optional accessories) to roam around the home or small business and remain connected to the network. Now subscribers can place computers and peripherals where they're convenient, not just where there's an available connection.

The SBG941 Series's internal antennas streamline the look and feel of the unit while eliminating the possibility of breakage.

### Configurable Output Power

The SBG941 Series offers an array of competitive advantages by providing superior transmission power with a close to omni-directional antenna, which delivers excellent coverage for the user. The SBG941 Series's improved range has increased user data throughput wireless data range of greater than 21 Mbps[2]. The SBG941 Series's adjustable output power can be configured, allowing just the right amount of signal to fill the required area without interfering with homes or businesses.

### Commercial-Class Security

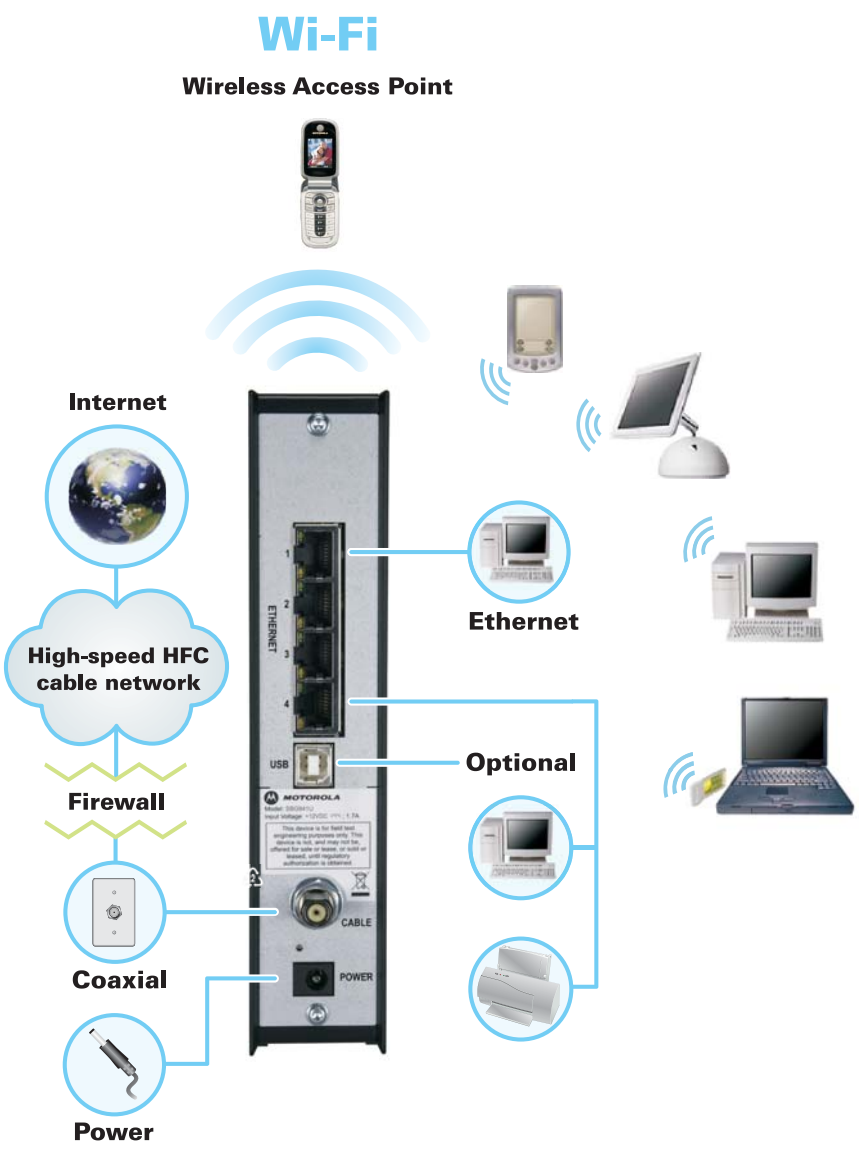
Finally, Motorola's SBG941 Series is secure. It includes an advanced firewall that helps protect the network from hackers and other outside interference while allowing desired data to pass through with ease. The firewall embedded in the gateway provides commercial-class protection through built-in denial-of-service attack prevention, stateful packet inspection, and intrusion detection. The firewall also allows VPN tunnel protocols to pass through, hiding the network from the outside world.

ECOMOTO™

**Motorola Cares for the Environment**
Motorola believes in "going green" — we have a global commitment to sustaining the environment. Motorola has been working for years to continually improve our environmental profile. We are in step with our customers and their increasing interest in partnering with a company that will help them reduce their carbon footprint, while offering compelling products that will help them grow their eco-conscious customer base.

**Motorola designed the SBG941 Series to minimize its impact on the environment**
Motorola's modems comply with international environmental and energy efficient standards, including ENERGY STAR qualified power supplies, European Code of Conduct compliance for both the power supply and modem, and lead-free circuit boards as certified by RoHS compliance.

**Packaging**
The SBG941 Series uses Motorola's new, environmentally friendly package design: our modems ship in single pack boxes. By both eliminating the suspension plastic and reducing the box size, Motorola is helping to reduce the environmental impact of the SBG941 Series. As an even more impactful step, operators may choose to receive the products in a bulk package, thus reducing the extra waste and transport weight associated with single packages. Motorola's bulk packaging solutions eliminate excess installation CDs and USB cables. Additionally, customers have the option to reduce the number of cables shipped with each unit. The packaging is 100% recyclable. Our packaging is now labeled with standard recycling codes (such as ♺) to make it easier for our customers to identify recycling opportunities.




## User-friendly Installation

Motorola's integrated SBG941 Series cable modem gateways include stateful firewall protection and WEP (Wired Equivalency Privacy). The SBG941 Series cable modem gateways are also equipped with a built-in, easy-to-use Motorola Wi-Fi installation wizard -- a 'zero-touch' auto Wi-Fi provisioning tool -- which seamlessly configures a secure Wi-Fi connection on a user's machine. When the Wi-Fi wizard is finished, a secure WPA (Wi-Fi Protected Access) encrypted wireless connection is established to the gateway, protecting the user's machine from hacker attacks. Motorola's embedded software enables Wi-Fi deployments with high levels of quality, reliability, and customer satisfaction, with low operational and support costs for the MSO.

## Service Assurance

Supporting the Wi-Fi home network is a new challenge for the cable industry. As the leading world-wide provider of DOCSIS® products, Motorola is helping ease cable operators into Wi-Fi delivery. By combining the highest-performing and lowest cost of ownership modems in the industry, with easy-to-use Wi-Fi installation and pairing tools as well as advanced remote management features, the SBG941 Series cable modem gateways are offering an all-in-one approach to broadband home networking. In addition, Motorola's field-proven NBBS device management software platform provides the MSO with intelligent management, auto-provisioning, and remote management features to improve accuracy, efficiency, and customer satisfaction. These value-adding features enable remote device administration for improved accuracy and reduced support costs. The SBG941 Series cable modem gateways are compatible with Motorola's NBBS scalable, carrier-grade software platform that enables cable operators to remotely access, configure, monitor, and troubleshoot their full portfolio of consumer devices, home networks, and services.

**The SBG941 Series Wireless Cable Modem Gateway delivers:**

- The speed of a DOCSIS 2.0 cable modem
- The mobility of a wireless LAN and the simplicity of "no new wires" technology

**Three networking products in one**
Integrated DOCSIS® 2.0 SURFboard cable modem, router with four 10/100 Fast Ethernet ports and auto-MDIX cross-over cable detection, and IEEE 802.11b/g wireless access point

**Easy setup**
An included CD-ROM provides an Installation Assistant, a Wireless Security Set Up Wizard, and multi-lingual product documents

**Web-based management**
Manage data and wireless network using a Web-based interface

**Advanced security**
Built-in firewall with stateful Packet Inspection (SPI), intrusion detection, and Denial of Service (DoS) attack prevention

**Extensible networking**
Network up to 253 desktop computers, laptops, and other Ethernet or wireless devices[2] to create a full Class C network

**Enterprise-capable**
VPN pass-through (IPSec, PPTP, L2TP), CableLabs L2VPN compliant

# General

| STANDARDS COMPLIANCE | |
|---|---|
| IEEE | 802.11b/g, 802.11b DSSS, 802.11b/g OFDM, 802.1d, 802.3, 802.3u, 802.31CPE |
| Data | DOCSIS 2.0 |
| Wireless | WMM, WPS, WPA, WPA2, and Wi-Fi Alliance Certified |

| WLAN RF CENTER FREQUENCY RANGE | |
|---|---|
| North America | 2.412 GHz to 2.462 GHz |
| Outside North America | 100 to 240 VAC, 50 to 60 Hz |

**DATA RATE AND MODULATION TYPES**
1 Mbit/s DBPSK; 2 Mbit/s DQPSK; 5.5 Mbit/s, 11 Mbit/s CCK; 6 Mbit/s, 9 Mbit/s, 12 Mbit/s, 18 Mbit/s, 24 Mbit/s, 36 Mbit/s, 48 Mbit/s, 54 Mbit/s OFDMOptions

| INTERFACES | |
|---|---|
| Cable interface | F-connector, female, 75 Ω |
| 4-port switch with corresponding 10/100 ports | |
| CPE wired interface | 10/100 Fast Ethernet (auto-sensing) |
| CPE wireless interface | 802.11b/g |
| Data protocol | TCP/IP |

# Downstream

**MODULATION**
64 or 256 QAM

**MAXIMUM DATA RATE[3]**
DOCSIS ≤ 38 Mbps
Euro-DOCSIS ≤ 51 Mbps

| BANDWIDTH | |
|---|---|
| DOCSIS | 6 MHz |
| Euro-DOCSIS | 8 MHz |

**SYMBOL RATES**
64 QAM 5.069 Msym/s, 256 QAM 5.361 Msym/s

**OPERATING LEVEL RANGE**
–15 to 15 dBmV
64 QAM: –17 to +13 dBmV
256 QAM: –13 to +17 dBmV

**INPUT IMPEDANCE**
75 Ω (nominal)

**FREQUENCY RANGE**
88 to 860 MHz
Euro-DOCSIS: 108 to 860 MHz

# Upstream

**MODULATION**
8***, 16, 32***, 64***, 128**** QAM or QPSK

**MAXIMUM DATA RATE[3]**
30 Mbps

**BANDWIDTH**
200 kHz, 400 kHz, 800 kHz, 1.6 MHz, 3.2 MHz, 6.44 MHz

**SYMBOL RATES**
160, 320, 640, 1280, and 2560, and 51204 ksym/s

| OPERATING LEVEL RANGE[4] | |
|---|---|
| A-TDMA | 8 to 54 dBmV (32 and 64 QAM)<br>8 to 55 dBmV (8 and 16 QAM)<br>8 to 58 dBmV (QPSK) |
| S-CDMA | 8 to 53 dBmV (all modulations) |

**OUTPUT IMPEDANCE**
75 Ω (nominal)

| FREQUENCY RANGE | |
|---|---|
| DOCSIS | 5 to 42 MHz (edge to edge) |
| Euro-DOCSIS | 5 to 65 MHZ |

# Network

**GATEWAY**
DHCP, NAT, VPN tunneling; static routing and dynamic IP routing (RIPv1, RIPv2); SPI firewall with DoS protection and intrusion prevention; port, packet, and URL keyword filtering; full suite of ALGs; UPnP IGD 1.0
Supports CableLabs L2VPN specifications

**WIRELESS LAN**
802.11b/g Wi-Fi

**NETWORK MANAGEMENT**
SNMP v1, v2c, v3, IP v6 addressing; LAN-side DHCP server; NAT, NAPT
Wireless device and its corresponding networks supportable by Motorola's NBBS Management System

**802.11i SECURITY**
WEP-64/128, WPA-PSK, WPA, WPA2, TKIP, AES, 802.1x, 802.11i (pre-authentication)

**DEVICE PAIRING**
User-friendly Wi-Fi protected setup (WPS) for secure WPS compatible device pairing

*** With A-TDMA or S-CDMA enabled CMTS
**** With S-CDMA enabled CMTS

[1] Certain features may not be activated by your service provider, and/or their network settings may limit the feature's functionality. Additionally, certain features may require a subscription. Contact your service provider for details. All features, functionality, and other product specifications are subject to change without notice or obligation. Motorola shall not be liable for, and expressly disclaims, any direct or indirect liabilities, damages, losses, claims, demands, actions, causes of action, risks, or harms arising from or related to the services provided through this equipment.

[2] Actual speeds will vary, and are often less than the maximum possible. Upload and download speeds are affected by several factors, including, but not limited to, network traffic and services offered by your cable operator or broadband service provider, computer equipment, type of server, number of connections to server, and availability of Internet router(s).

[3] Actual speeds will vary. Maximum speeds are only attainable with A-TDMA or S-CDMA technology.

[4] Older versions of Windows, although not specifically supported, will work with this cable modem.

## Network, cont.

**REGULATORY DOMAINS**
To include US, Canada, ETSI, European Union, World

**TRANSMIT POWER OUTPUT**

| | |
|---|---|
| IEEE 802.11b | 20 dBm (EIRP) |
| IEEE 802.11g | 17 dBm (EIRP |

**RECEIVER SENSITIVITY***
–74 dBm at 54 Mbps

## Electrical

**INPUT VOLTAGE RANGE**
100 to 240 VAC, 50 to 60 Hz

**POWER CONSUMPTION**
9 W (nominal)

## Physical

**TEMPERATURE**

| | |
|---|---|
| Operating | 32 °F to 104 °F (0 °C to 40 °C), –150 to 10,000 ft |
| Storage | –22 °F to 158 °F (–30 °C to 70 °C) |

**HUMIDITY**
5% to 95% (non-condensing)

**DIMENSIONS**
5.7 in H x 5.7 in W x 1.5 in D
(146.0 mm x 146.0 mm x 38.0 mm)

**WEIGHT**
15 oz (0.42 kg) (unit only)

*Receiver sensitivity indicated under ideal conditions.

## Compatibility

**PLATFORM**

| | |
|---|---|
| PC | 90496, Pentium, or later; Windows® Vista ™, 2000, or XP; or Linux with Ethernet connection[4] |
| Macintosh® | Power PC or later; OS 9 or higher; Ethernet connection |
| UNIX® | Ethernet connection |
| Home Networking | Ethernet router or wireless access point |

## Environmental

Power supply meets H.R.6, EnergyStar, and CoC (European Code of Conduct) requirements
100% recyclable packaging
Unit meets CoC requirements for Energy Consumption of Broadband Equipment
Unit is RoHS compliant (lead free)

MOTOROLA

Pb-free RoHS COMPLIANT MEMBER WiFi ALLIANCE ENERGY STAR Powered by an ENERGY STAR® qualified adapter for a better environment

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